AMENDMENT AND PRESENTATION OF CLAIMS

Please replace all prior claims in the present application with the following claims, in which claims 1-9 are currently amended.

1. (Currently Amended) ~~Resolution~~ A resolution filter (4) for a spectrum analyser (1), wherein the resolution filter (4) has the following complex, discrete impulse response $h_{used}(k)$:

$$h_{used}(k) = C_1 \cdot \left[e^{-C_2 T_a{}^2 \cdot k^2} * h_{allp}(t) \right] \cdot e^{-jC_3(k-k_0)^2 \cdot T_a{}^2}$$

wherein C_1, C_2 and C_3 are constants, k is the sampling index and T_a is the sampling period,

wherein $h_{allp}(t)$ is the Fourier retransform of $e^{j\varphi(f)}$, in which $\varphi(f)$ is a randomly-specified phase response dependent upon the frequency of the transmission function of the resolution filter,

wherein k_0 is a free variation parameter and

wherein the variation parameter k_0 is set in such a manner that the frequency overshoot determined by the group delay of the resolution filter (4) is compensated.

2. (Currently Amended) ~~Resolution~~ A resolution filter according to claim 1, ~~characterised in that~~ wherein:

the variation parameter k_0 is set in such a manner that the middle of the frequency response $H_{used}(f)$ of the resolution filter is disposed at the frequency origin at the frequency f=0.

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3. (Currently Amended) ~~Resolution~~ A resolution filter according to ~~any one of claims~~ claim 1 ~~or 2~~, ~~characterised in that~~ wherein:

φ(f) and ~~therefore also~~ h_allp(t) are selected in such a manner that a minimal-phase resolution filter is formed.

4. (Currently Amended) ~~Resolution~~ A resolution filter ~~(4)~~ according to ~~any one of claims~~ claim 1 ~~to 3~~, ~~characterised in that~~ wherein:

the value of the constant C_1 is:

$$C_1 = \sqrt{\frac{\pi}{2\ln(2)}} \cdot B_{res} \cdot T_a$$

wherein B_{res} is the bandwidth of the resolution filter ~~(4)~~.

5. (Currently Amended) ~~Resolution~~ A resolution filter ~~(4)~~ according to ~~any one of claims~~ claim 1 ~~to 4~~, ~~characterised in that~~ wherein:

the value of the constant C_2 is

$$C_2 = \frac{\pi^2}{2\ln(2)} \cdot \frac{1}{T_{res}^2},$$

wherein $T_{res} = 1/B_{res}$ is the reciprocal bandwidth B_{res} of the resolution filter ~~(4)~~.

6. (Currently Amended) ~~Resolution~~ A resolution filter ~~(4)~~ according to ~~any one of claims~~ claim 1 ~~to 5~~, ~~characterised in that~~ wherein:

the value of the constant C_3 is

$$C_3 = \frac{\pi}{K} \cdot B_{res}^2,$$

wherein B_{res} is the bandwidth of the resolution filter ~~(4)~~ and K is the K-factor of the resolution filter ~~(4)~~, wherein the K-factor is defined via the equation:

$$f(t) = \frac{1}{K} \cdot B_{res}^{2} \cdot t$$

and f(t) is a frequency variable with time t in a linear manner, which is supplied to a mixer ~~(3)~~ of the spectrum analyser ~~(1)~~ connected upstream of the resolution filter ~~(4)~~.

7. (Currently Amended) ~~Spectrum~~ A spectrum analyser for analysing the spectrum of an input signal with a resolution filter ~~(4)~~ specifying the frequency resolution, wherein the resolution filter ~~(4)~~ has the following complex, discrete impulse response $h_{used}(k)$:

$$h_{used}(k) = C_1 \cdot \left[e^{-C_2 T_a^2 \cdot k^2} * h_{allp}(t) \right] \cdot e^{-jC_3(k-k_0)^2 \cdot T_a^2}$$

wherein C_1, C_2 and C_3 are constants, k is the sampling index and T_a is the sampling period,

wherein $h_{allp}(t)$ is the Fourier retransform of $e^{j\varphi(f)}$, in which $\varphi(f)$ is a randomly-specified phase response dependent upon the frequency of the transmission function of the resolution filter,

wherein k_0 is a free variation parameter and

wherein the variation parameter k_0 is set in such a manner that the frequency overshoot determined by the group delay of the resolution filter ~~(4)~~ is compensated.

8. (Currently Amended) ~~Spectrum~~ A spectrum analyser according to claim 7, ~~characterised in that~~ wherein:

the variation parameter k_0 is set in such a manner that the middle of the frequency response $H_{used}(f)$ of the resolution filter is disposed at the frequency origin at the frequency f=0.

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9. (Currently Amended) ~~Spectrum~~ A spectrum analyser according to ~~any one of claims~~ claim 7 ~~or 8~~, ~~characterised in that~~ wherein:

$\varphi(f)$ and ~~therefore also~~ $h_{allp}(t)$ are selected in such a manner that a minimal-phase resolution filter is formed.